



# **report liquid cargo committee**

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Directorate of Commercial Publicity,  
Ministry of Commerce,  
New Delhi

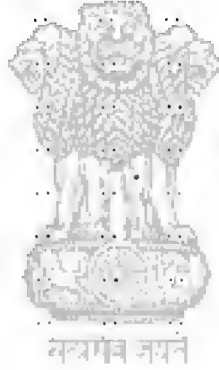
# **REPORT OF THE LIQUID CARGO COMMITTEE**



**DIRECTORATE OF COMMERCIAL PUBLICITY, MINISTRY OF  
COMMERCE, GOVERNMENT OF INDIA, NEW DELHI**

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## CHAPTER I

### INTRODUCTION

The Committee on Liquid Cargo was constituted by a Memorandum of the Government [No. 7\*(1)/64-BOT dated the 15th May, 1964/25th Visakha 1886] in the then Ministry of International Trade to examine the question of the bulk transportation, storage and handling of liquid cargoes other than petroleum products exported from and imported into India with a view to improving the efficiency of operations, reducing costs and maximising foreign exchange earnings. The following persons constituted the Committee:—

#### *Chairman*

- (1) Shri B. P. Patel,  
Chairman,  
State Trading Corporation of India Ltd.,  
New Delhi.

#### *Members*

- (2) Shri P. A. Narielwala,  
Chairman,  
Basic Chemicals, Pharmaceuticals and Soaps Export Promotion Council, Bombay.
- (3) Shri C. D. Thakkar,  
Chairman,  
Chemicals and Allied Products Export Promotion Council,  
Calcutta.
- (4) Shri C. P. Srivastava,  
formerly Managing Director,  
Shipping Corporation of India, Bombay,  
(Presently Joint Secretary, Prime Minister's Secretariat,  
New Delhi).
- (5) Dr. A. Seetharamiah,  
Industrial Adviser,  
Directorate General of Technical Development,  
Ministry of Industry & Supply, New Delhi.
- (6) Shri S. Rajagopalan,  
Director (Transport),  
Ministry of Commerce, New Delhi.

- (7) Shri K. Ranganathan,  
Deputy Secretary, Ministry of Transport,  
New Delhi.

*Secretary*

- (8) Shri F. R. Bijli,  
Senior Export Promotion Officer,  
Ministry of Commerce, New Delhi.

2. Consequent upon his appointment as Director (Transport), in the Ministry of Commerce, Shri M. P. Sathaye was made a member of this Committee in place of Shri S. Rajagopalan vide Memorandum No. 7\* (1)/64-BOT dated the 25th July, 1964/3rd Sravana, 1886.

3. The terms of reference of the Committee were as follows:—

- (a) To assess the annual export from and imports into India of liquid cargoes other than petroleum products during the next 10 years;
- (b) To review the existing port, shipping and ancillary facilities available for the transportation storage and handling of liquid cargoes at present;
- (c) To determine the extent to which it would be possible to organise the handling of bulk shipments of liquid cargoes exported from and imported into India with a view to improving the efficiency of operations, reducing costs and maximising foreign exchange earnings;
- (d) To recommend measures for the installation of the port storage facilities and for acquisition of tankers necessary for achieving the above objective;
- (e) To formulate a comprehensive scheme for the bulk transportation, storage and handling of liquid cargoes and to recommend a suitable agency or agencies which should be entrusted with the administration of such a scheme; and
- (f) To make recommendations on such ancillary measures as it may consider necessary for improving the efficiency of operations in the transportation, storage and handling of liquid cargoes.

4. The Committee met five times between June, 1964 and April, 1965 in New Delhi and Bombay.

5. In dealing with terms of reference the Committee has considered not only the liquid cargo in vegetable oils and chemicals but also cashew shell liquid oil generally exported from the ports of Cochin and Mangalore.

6. The Committee decided to obtain the views of the following in order to formulate its views :

1. All Chairmen of Port Trusts.
2. All Collectors of Customs.
3. Associations connected with export of oils.
4. Associations connected with chemicals.
5. Export Promotion Councils concerned.
6. The Directorate General of Technical Development (Chemicals Directorate), Ministry of Industry & Supply.
7. The Ministry of Food and Agriculture (Department of Agriculture).
8. The Ministry of Railways.
9. Leading Export Houses.
10. Leading Import Houses.
11. Oil Companies.

7. Two questionnaires—one for liquid chemicals and the other for vegetable oils—were prepared for this purpose and issued to all the bodies referred to above. These two questionnaires are reproduced in Appendices II(a) and II(b) of this Report. The response to the questionnaires has been satisfactory. The Committee had also the opportunity to discuss some of the basic issues pertaining to bulk transportation of vegetable oils and liquid chemicals with a few experts on the subject. The list of Chambers of Commerce etc. to whom the questionnaires were issued is indicated in Appendices III(a) and III(b). The names of experts from whom the Committee took oral evidence are given in Appendix IV.

## CHAPTER II

### IMPORT AND EXPORT OF LIQUID CARGOES IN BULK

The important item of liquid cargo other than petroleum that figures in our foreign trade could be classified under two major heads—vegetable oils (including cashew shell oil) and liquid chemicals. The storage arrangements at the ports as well as the shipping are not properly organised, except in respect of one or two items. As a result of this lack of organisation, not only we do not obtain the best price possible for our exports and buy our imports at the cheapest possible rate, but there is also a considerable amount of avoidable foreign exchange outgo in the shape of high shipping freight rates.

2. Except for limited facilities available at Calcutta for Benzene and Molasses, at Visakhapatnam for Molasses, at Madras for Molasses and vegetable oils, at Cochin and Mangalore for cashew shell oil, at Bedi Bunder and Bhavnagar (Saurashtra ports) for vegetable oils and at Kandla for alcohol and methanol, there are no facilities in any of the ports in India for bulk storage or handling at competitive rates. As a consequence, the export of vegetable oils in bulk is greatly handicapped and the trade in chemicals is conducted in small packed units. Tanks for vegetable oils in Madras are owned by the Port Trust. Remaining tanks are owned and operated by private parties.

3. It has been brought to the notice of the Committee that shipment and bulk handling of liquid cargo in bulk commonly result in a saving of as much as 20 per cent of the value on account of the reduced cost of freight and packing. If suitable arrangements could be devised to effect economies in expenditure on these operations which have to be paid for in foreign exchange in the case of import trade, the resulting relief will be of considerable dimensions. According to the statistical compilation "Monthly Statistics of the Foreign Trade of India" by the Director General of Commercial Intelligence and Statistics, Calcutta, imports of chemicals in terms of value during 1962-63 and 1963-64 have been approximately Rs. 21 crores and Rs. 19 crores respectively. Out of this, the import bill on chemicals which are of a liquid nature is approximately Rs. 8 crores. It is reported that most of the chemicals are imported in small packed units. If there had been facilities for importing them in bulk, the saving to the extent of 20 per cent in packing and freight could be achieved. This could have been usefully utilised for importing higher quantum of liquid chemicals needed for the industrialisation of the country.

4. There is a preference on the part of developed countries to sell commodities on a c.i.f. basis and to buy them on a f.o.b. basis. They could sustain this practice in the matter of bulk trade because they enjoy a virtual monopoly in regard to shipping. The Committee

therefore, thought it necessary and worthwhile to examine whether it would not be possible for some Indian agency to enter this field of sea transport.

5. Another aspect which the committee felt could be usefully examined is related to the imports comprising of palm oil, soya bean oil, tallow and liquid chemicals, on the basis of individual requirements of actual users and established importers. The economies that would accrue from bulk imports and rationalised redistribution according to needs are lost in this method of operations. The Committee is of the opinion, that to begin with, it would be desirable to import the requirements in bulk by restricting such imports to a few important items. This could be attempted by one or limited agencies for storage and subsequent redistribution in smaller quantities as may be needed from time to time.

6. The above proposition raises the question of distribution. In this context the term "distribution" is intended to cover the physical operation of storing, handling and supplying the goods from the point of production (in this case storage in bulk) to the consumers. The distributor's objective should be a simple one: "to deliver the right goods to the right places at the right time at the lowest possible cost". To achieve this objective three basic principles will have to be followed. Firstly, to reduce to the minimum the number of stages in the chain of distribution, secondly, to handle the largest possible quantities at each stage and thirdly, in all operations to obtain the most economical use of the available resources in capital, equipment and labour. To have several intermediate stages between the supplier and the customer may sometimes be inevitable but such stages should be kept to the minimum. Efforts to implement the principles must be made inside a framework, imposed by the nature of demand for a product. The economies of large-scale distribution are among the pressures behind the recent growth of super-markets which is rapidly changing the pattern of world trade.

7. Unless bulk storage facilities are made available at important port towns for storing liquid cargo that is exported and also for the liquid cargo that is imported, distribution of the kind envisaged above would not be possible.

8. On a reference by the Committee the Consulate General of India, New York, has furnished information as supplied by the Port of New York Authority of the commercial organisations operating bulk liquid storage facilities for vegetable oils at New York—New Jersey Port. There are nearly 349 tanks of various capacities built at the New York—New Jersey Port and a list of the commercial organisations with the number of tanks operated by each organisation is annexed at Appendix "V". The Port of New York Authority have further stated that the distance from the centres of vegetable oils production to tank farms located in New York area is about 800 to 1,000 miles. The principal areas of vegetable oils production are according to this report, Chicago, Danville, Peoria and Quincy, Illinois, Burlington, Cedar Rapids, Clinton, Des Moines, Mason City,

Muscatine and Sioux City, Iown and that the generally accepted mode of transportation from these areas is by rail cars. Compared to this the principal centres of production in India, namely, Andhra Pradesh, Gujarat, Maharashtra, Mysore and Madras for various types of vegetable oils are distinctly better placed.

9. It was brought to the notice of the Committee as to how the requirements of Burma in groundnut oil during 1964 were met by M/s. PAKHUISMEESTEREN N. V. Rotterdam. The groundnut oil was arranged to be imported into Rotterdam in small lots from a number of countries and was stored in bulk installations. After pooling the oil, the same was exported in drums to meet the Burmese requirements. It is reported that this has proved economical and competitive. Similar advantages could be obtained through bulk installations in India as well.



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### CHAPTER III

#### EXPORT/IMPORT TRADE OF VEGETABLE OILS

Vegetable oils had been for many years among the principal exports of India. India was almost the monopoly supplier of some of the vegetable oils in the U.K. market. Indian oils, however, were completely priced out a few years ago and the export of edible oils figured only nominally. Lately with the introduction of the scheme of incentives there has been an improvement and Indian vegetable oils are again selling in the world market!. Depending upon the available information (received through the questionnaire and oral evidence) the Committee is satisfied that given proper facilities for bulk storage at the important port towns and if a long-term export policy is pursued for vegetable oils, this trade could be put on a sound footing.

2. The average annual production, internal consumption, surplus available for export and the centres of production of different varieties of oils is as under:—

<i>Figures in Metric tonnes</i>					
(i) Name of the oil	..	Groundnut oil	Castor oil	Linseed oil	Cashew shell oil
(ii) Annual production	..	11,00,000	55,000	1,20,000	10,000 to 12,000
(iii) Internal consumption	..	10,00,000	10,000	60,000	3,000 to 4,000
(iv) Surplus available for exports	1,00,000	40,000 to 45,000	50,000 to 60,000	7,000 to 9,000	
(v) Centres of Production	..	Andhra Pradesh, Gujarat, Maharashtra & Madras.	Andhra Pradesh, Maharashtra and Mysore.	Madhya Pradesh, Uttar Pradesh, Bihar & Andhra Pradesh.	Kerala, Mysore and Madras.

\*N.B. Exports of edible oils have been recently banned on account of acute shortage and sudden rise in their prices.

3. The major items of vegetable oils exported during the past few years are as follows:—

Sl. No.	Item	1961-62		1962-63		1963-64	
		Qty.	Val.	Qty.	Val.	Qty.	Val.
(a)	Groundnut oil	6,789	103	57,732	783	97,106	1,345
(b)	Castor oil ..	24,881	400	30,114	429	35,368	480
(c)	Linseed oil ..	704	14	1,141	20	782	12
	TOTAL ..	32,374	517	88,987	1,232	133,256	1,837
(d)	Cashew shell oil..	6,230	61	7,448	74	8,986	100
	GRAND TOTAL ..	38,604	578	96,435	1,306	142,242	1,937

**N.B. Other Vegetable Oils:**

Kardiseed Oil, Mustard Oil, Sesamum Oil, Salad Oil, Niger Oil, Cotton Seed Oil etc exported in very small quantities.

4. The major ports through which the above oils are exported are:—

1. Groundnut Oil .. .. Bedi Bunder, Bhavnagar, Veraval and Porbunder in Saurashtra, Bombay and Madras.
2. Castor Oil .. .. Bombay and Madras.
3. Linseed Oil .. .. Bombay and Calcutta.
4. Cashew Shell Oil .. .. Cochin and Mangalore.

The quantum of vegetable oils exported from these ports during 1961-62, 1962-63 and 1963-64 are indicated below:—

Groundnut oil		1961-62	1962-63	1963-64
		(Tons)	(Tons)	(Tons)
<b>Saurashtra Ports</b>				
(i) Bhavnagar .. ..		955	7,490	19,695
(ii) Veraval .. ..		—	610	7,330
(iii) Bedi .. ..		—	1,950	1,055
<b>Bombay</b> .. ..		N.A.	N.A.	N.A.
				(52,354 tonnes during 1963)
<b>Madras</b> .. ..		647	3,483	10,925
<b>Other Ports</b>				
(Incl. Bombay) .. ..		5,147	44,199	58,101
	<b>TOTAL</b> ..	6,749	57,732	97,106
<b>Castor Oil</b>				
<b>Bombay</b> .. ..		N.A.	N.A.	N.A.
				(42,368 tonnes during 1963)
<b>Madras</b> .. ..		1,064	373	N.A.
<b>Other Ports incl. Bombay</b>		23,817	29,741	35,368
	<b>TOTAL</b> ..	24,881	30,114	35,368

5. Vegetable oils are moved from upcountry producing centres to ports by rail either by "Tank Wagons" or in "Barrels" stacked in wagons. Tank wagons are decanted into tank lorries which move to docks for effecting bulk oil shipments through pumping arrangements. In the case of barrels they are brought to the dock by motor trucks and are shipped as such or are emptied out in portable tanks from which the oil is pumped into the holds of ships.

6. Producers in the upcountry place their indents with the railway authorities for movement of their oil either in tank wagons or box wagons to the port of shipment and the shippers at the port arrange for shipping space either in bulk tanks or for drum shipments. Occasions arise when either as a result of non-availability of tank wagons or box wagons in time, delay in their arrival at the port of shipment, non-availability of shipping space or delay in the schedule of the Steamer, the shippers are put to enormous difficulties.

7. The bulk storage facilities available at the various ports are as follows :—

(i) **MADRAS**

There are three tanks for bulk storage for shipment of vegetable oils. Of these, two tanks are each of 200 tons capacity and the third is of 250 tons capacity. These tank installations belong to the port authorities. There are pipeline connections up to water-front. The liquid is decanted into tanks and from there into the vessels by means of electrically operated pumps.

(ii) **SAURASHTRA PORTS**

(a) *Bedi Bunder*—There is one tank of 1200 tons capacity erected by a private party in the dock area.

(b) *Bhavnagar*—There are five storage tanks owned by private parties. Of the five tanks, four are each of 100 tons capacity and the fifth is of 600 tons capacity. One more tank of about 300/400 tons capacity is under construction by a private party.

(c) *Veraval*—No tank storage facilities are available.

(d) *Porbunder*—No tank storage facilities are available.

(iii) **BOMBAY**

There are no facilities for storage of vegetable oils in tanks.

(iv) **COCHIN**

There are ten privately owned storage tanks on leased area with a total capacity of 1,150 tons. Eight tanks have capacities of about 115 tons whilst the remaining two tanks are of 125 tons capacity. All the storage facilities are reserved mainly for cashew shell oil exports in bulk.

(v) **MANGALORE**

There is facility for storing 210 tons cashew shell oil.

8. Vegetable oils are sold both on c.i.f. and f.o.b. basis depending upon the requirements of buyers and sellers.

9. Mode of exports of vegetable oils resorted to at present :—

### BOMBAY

As there are no tank installations in this port, generally the export is effected by the local crushers and dealers by carrying the oil in drums or in tank lorries to the docks and pump the oil from tank lorries to the vessels' tanks directly or through a movable tank temporarily located by the side of the ship as a balancing reservoir between the incoming and outgoing oil. Similarly oils imported in Bombay are pumped from the steamer into the tank lorries and tank barges which then carry the oil to the consignees' factories in Bombay. The cost of bulk handling charges at this port are :—

(a) Cost of pumping oil from the tank/lorries to steamer .. .. .	Rs. 10.00 per m. tonne
(b) Wharfage .. .. .	Rs. 2.95 per m. tonne
(c) Sundry expenses .. .. .	Rs. 1.00 per m. tonne
<b>TOTAL ..</b>	<b>Rs. 13.95 per m. tonne</b>

For imports occasionally tank barges are used, which are owned by only one party in Bombay. The cost of this is Rs. 4/- per metric tonne higher than the cost of clearance by tank lorries. Otherwise, the handling charges for imports in bulk is the same as above.

Due to absence of tank facilities at the port, upcountry exporters and importers are unable to take advantage of bulk shipments. The Committee is convinced that the need for tank facilities at Bombay is great and in constructing tank farms, large number of exporters can take advantage for shipment of their oils in bulk. Apart from this it will be possible to have quicker loading and discharge rate and large shipments could be handled so as to avoid incurring of demurrage and earning extra dispatch money.

### MADRAS

The present tank farms at this port and the facilities for pumping oil directly from these tanks into the vessels have had a great impact on the bulk handling cost as evident from the following:

(a) Charges for decanting oil .. .. .	Rs. 1.10 per m. tonne
(b) Pumping charges from tanks into steamers' tanks	Rs. 2.50 per m. tonne
(c) Wharfage .. .. .	Rs. 5.60 per m. tonne
(d) Survey charges .. .. .	Rs. 1.70 per m. tonne
<b>TOTAL ..</b>	<b>Rs. 10.90 per m. tonne</b>

## SAURASHTRA PORTS

## (i) Bhavnagar

This is an all-weather port. The tank installations constructed by private parties in the port area are hired out to shippers who need for their use. It has been brought to the notice of the Committee that these tanks are not available freely and the cost of shipment in bulk are high since they include the higher charges to be paid to the owners of the tank installations. It is reported that it is cheaper at this port to make shipments in drums in terms of cost of handling charges compared to shipments in bulk. The breakdown of handling charges in bulk and in drums is as under :—

	In bulk	In drums per tonne
(a) Charges for unloading, stacking and shifting drums at Port and stencilling for drum shipment .. .. .	1.70	7.26
(b) Wharfage .. .. .	3.13	4.58
(c) Service charges to the contractor for letting tanks and pumping the oil .. .. .	24.50	2.00
(d) Survey charges .. .. .	1.50	2.20
(e) Miscellaneous .. .. .	1.00	1.00
<b>TOTAL ..</b>	<b>31.83</b>	<b>17.04</b>
(f) Charge on drums .. .. .	—	50.00
<b>GRAND TOTAL ..</b>	<b>31.83</b>	<b>67.04</b>

N.B.—The service charges indicated at (c) above is for a period ranging from 7 to 30 days.

In the case of shipments in drums, the handling charges appear to be less by about 40% compared to bulk handling. This is for the reason that the cost factor of drums is not included though in the case of bulk handling, the service charges indicated above appear to be on the high side. In arriving at the comparative cost of handling charges for shipments in "bulk" and in "drums", it would be necessary to estimate the cost element of drums used. To store one tonne of oil,  $5\frac{1}{2}$  drums (at 180 Kgs. per drum) would be required. On the assumption that second-hand drums would be used and taking into account the re-sale value of the drums so used, the cost involved for the drums could be placed between Rs. 50 to 55. Accordingly the total handling charges for shipments in drums inclusive of handling charges of Rs. 17 indicated in the above table would come to, say, Rs. 67 against the total charges of Rs. 32 for bulk handling.

The service charges for bulk handling at this port are high for the reason that the tanks are owned by private parties and the charges payable at Rs. 24.50 per metric tonne to the contractor for utilising the bulk facilities are exorbitant. Had there been bulk

storage facilities offered by a central agency, the hire-charges are capable of being reduced further. The need for such bulk facilities in this port, is therefore great.

## (ii) Veraval

At this port steamers load and unload in midstream. This is a seasonal port but one of the main ports in Saurashtra for handling exports of oils. As there are no bulk storage facilities at this port, it has been represented to the Committee that provision of bulk storage facilities would enable this port to handle more traffic during the season. For exports of vegetable oils in bulk the following cumbersome and expensive procedure, it is reported, is followed :—

1. Oil is received from different centres in drums by roads; and
2. These are emptied into privately owned shore troughs and is pumped into the port barges which go along side the ship in stream.

The number of barges available at this port are inadequate resulting in a tremendous amount of time lost in handling bulk exports. The port facilities in general are inadequate to cope with the quantum of cargo during the peak season. It is reported that there is a lot of congestion of goods awaiting shipment at ports and exporters find difficulties in fulfilling contracts at per shipping schedules. The bulk storage facilities at this port would definitely facilitate handling more traffic during the peak season. The cost of handling oils in bulk and in drums at this port is as under :—

	Bulk per m. tonne.	Drums per m. tonne.
(a) Charges for unloading, stacking, shifting drums at port and stencilling charges for drums shipment .. .. .	3·81	5·45
(b) Wharfage .. .. .	3·13	4·58
(c) Lighterage and service charges .. .. .	—	4·25
* (d) Charges to S. contractor for carrying the drums in barges to midstream, decanting the oil in troughs and loading the oil in bulk .. .. .	23·00	—
(e) Surveyor's fees .. .. .	1·50	2·20
(f) Miscellaneous .. .. .	1·00	1·00
<b>TOTAL ..</b>	<b>32·44</b>	<b>17·48</b>
<b>(g) Charges on drums .. .. .</b>	<b>—</b>	<b>50·00</b>
<b>GRAND TOTAL ..</b>	<b>32·44</b>	<b>67·48</b>

The absence of storage facilities at this port necessitate the shippers to bring the oil in Drums and adopt the out-moded method of

\*The service charges indicated at (d) above is for a period ranging between 7 to 30 days.

decanting the oil in troughs and loading the same in bulk in mid-stream. On the assumption that second-hand drums would be used and taking into account the re-sale value of the drums so used, the cost involved for the drums could be placed between Rs. 50 to 55. Accordingly the total handling charges for shipments in drums inclusive of handling charges of Rs. 18 indicated in the above table would come to, say, Rs. 68 against the total charges of Rs. 33 for bulk handling.

N.B.—The handling charges indicated above at all the ports is exclusive of the permissible rate for leakage.

## 10. Export Prospects

The Committee after carefully analysing the material collected and evidence tendered by experts has come to the conclusion that while admitting the need for exports and thereby to earn foreign exchange for the country, the attainment of progressive increase in exports of vegetable oils would *inter alia* depend upon a variety of factors such as the vagaries of monsoon, level of production, availability of exportable surplus, Government's export policy, price parity in international markets etc. Given normal crop conditions, the trend of exports would be progressively upward. On this assumption, the anticipated exports of groundnut oil by the end of 1970-71, could be placed at 1,50,000 tons. This will comprise of 30,000 metric tons refined and 1,20,000 tons crude oil. In addition the anticipated exports of castor oil by 1970-71 could be around 35,000 tons. A forecast of 11,000 tons by 1966, 16,000 tons by 1971 and 20,000 tons by 1976 has been made for the export of cashew shell oil by the Cashew Export Promotion Council, Ernakulam. The break-up of the quantity portwise could be estimated as under:—

(1) <i>Groundnut oil</i>							
(a) Bombay	..	..	..	..	..	..	30,000 tons
(b) Madras	..	..	..	..	..	..	20,000 tons
(c) Saurashtra	..	..	..	..	..	..	1,00,000 tons
(2) <i>Castor oil</i>							
Bombay	..	..	..	..	..	..	35,000 tonnes
(3) <i>Cashew Shell Oil</i>							
Cochin and Mangalore	..	..	..	..	..	..	16,000 tonnes

## 11. Imports

### (i) *Palm oil*

Palm oil is being imported in large quantities to meet the requirements of soap industries. Palm oil imports during the last few years were of the order of:—

1961-62	41,531 tonnes
1962-63	26,601 tonnes
1963-64	37,018 tonnes

The import of this oil is favoured for the reason that the price of groundnut oil was 20% to 25% higher than that of the palm oil

and that it was profitable to export groundnut oil and import palm oil for the soap industries. It was brought to the notice of the committee that to meet the demands of the soap industries soya bean oil from America is likely to be permitted for imports. In such an event, as palm oil and soya bean oil are generally transported in bulk quantities, the storage facilities that could be made available at ports for vegetable oils for exports, could well be utilised for soya-bean oil/palm oil.

#### (ii) Tallow

As an alternative to substantially reduce import of palm oil, Tallow is likely to be imported to the extent of 50,000 tonnes mainly under A.I.D. for use by the soap manufacturers at Bombay Calcutta and Madras.

### 12 Tank Wagons

The use of tank wagons would, among other things, depend upon the availability of bulk storage tanks. The most economic way of handling exports is to have a complete link from Railway tanks wagons to bulk tank farms at ports and thereafter to bulk tanks on ships. A statement of Tank Wagons available on Indian Railways for transport of liquid consignments other than petroleum products is at Appendix VI. It will be observed therefrom that at the end of the Third Plan the anticipated number of Tank Wagons for vegetable oils would be 1078 B.G. and 690 M.G. and that for liquid chemicals other than molasses and coal tar would be 520 B.G. and 26 M.G. wagons. The target of export of Groundnut oil and Castor oil during the Fourth Plan has been fixed at 1,50,000 tonnes and 50,000 tons compared to Third Plan targets of 75,000 tonnes and 45,000 tonnes respectively. Considering the proposal to build "tank farms", and the requirements therefor, the Ministry of Railways may consider provisions for the following tank wagons for Vegetable oils and liquid chemicals :—

Commodity	By the end of Third Plan		By the end of Fourth Plan	
	BG	MG	BG	MG
Vegetable oils .. .. .	1,078	690	2,000	1,200
*For Liquid Chemicals other than Molasses and Coal tar .. .. .	520	26	750	50

13. The Committee would recommend that sufficient number of tank wagons should be built by the Railways for getting full utility of the tank farms that would be built at port towns.

### 14. Tank Farm Requirements

On the basis of current exports and anticipated exports of vegetable oils, cashew shell oil and import of palm oil/soya bean oil

\*In the case of distribution of these vehicles for different categories of Chemicals, the increase proposed should be more or less in the same proportion as was followed for planning the increase for the Third Plan period over the position at the end of the Second Plan.

and Tallow. the requirements of storage facilities at the various ports could be placed as under :—

		4,000 tonnes.
(i) Bombay port	<i>Comprising</i> 6 tanks of 250 tonnes capacity 5 tanks of 500 tonnes capacity	
(ii) Bhavnagar Port ..	<i>Comprising</i> 2 tanks of 250 tonnes capacity 1 tank of 500 tonnes capacity	1,000 tonnes (Addl.)
(iii) Veraval Port ..	<i>Comprising</i> 2 tanks of 300 tonnes capacity	600 tonnes
(iv) Bodi Bunder ..	There is no need to construct any storage tanks. The existing tank of the private party can be taken over by the port/central agency for providing the facility.	
(v) Madras ..	Nil. (the existing capacity is sufficient)	
(vi) Cochin ..	Nil: The main exports are cashew shell oil and the existing facilities are more than sufficient.	

15. The tank farms to be established at the various ports should consist of standard units as large in number as possible subject to the condition that the smallest unit should not be less than 250 tons capacity as more tanks would give opportunity for more shippers to store oil. The tank farms that would be established for export of vegetable oils could be usefully utilised for storing imported palm oil, soyabean oil and tallow.

16. The Committee would suggest that it would be necessary to ensure that bulk shipments were weighed at the weigh-bridge and are metered volumetrically. It would be necessary for this purpose to instal meters and weigh-bridges simultaneously with the construction of tank farms. This is suggested for the reason that the modern methods of weighment for shipments of oil could be adopted in place of the outmoded dip measurement basis being following currently in the case of Indian exports of oils in bulk.

17. The Committee's attention was drawn to an important factor regarding cottonseed oil. It appears that much of cottonseed available in the country, at present, was not being put into proper use to produce cottonseed oil. If Government could take steps to encourage crushing cottonseed oil the total availability of edible oil could be estimated around 1,00,000 tonnes annually and the same could be exported as this oil could replace groundnut oil exports. The Committee was informed that due to certain technical difficulties, this is not being agreed to as according to rules no solvent extracted oil could be used for edible purposes. If the above position is correct, it is paradoxical as to how Government would interpret the same rules to permit soyabean oil which is obtained only by solvent extraction process. The Committee, under the circumstances, is of the view that this aspect of permitting cottonseed to be crushed into oil should be examined afresh as the scope offered by cottonseed oil for exports in replacement of groundnut oil is great.

## CHAPTER IV

### EXPORT/IMPORT OF LIQUID CHEMICALS

The Committee, based on the replies received to the questionnaire and the oral evidence given by the exports on liquid chemicals, is convinced, that the export and an assessment of import potential of major liquid organic chemicals for a period of 10 years would be extremely difficult to arrive at with any degree of accuracy.

2. The export surplus and import requirements of different chemicals depend on the pace of industrial development and the implementation of programmes for manufacture of these chemicals within the country. The primary object for planning of organic chemical industries is to manufacture most of the major intermediates and basic chemicals from indigenously available raw materials. The pattern of trade in exports and imports of bulk chemicals would, therefore, be changing from year to year depending on the commissioning of various plants and demands from consuming industries. The Committee, in the circumstances, is unable to indicate precisely the chemicals which will be exportable as well as the chemicals which may continue to be imported on a long-term basis.

#### EXPORTS

3. The major items of bulk liquid chemicals that figure in the country's export trade have been Molasses, Ethyl Alcohol and Benzene. The ports through which they have been exported are:—

(i) Molasses	.. Calcutta
	.. Visakhapatnam
	.. Madras
(ii) Ethyl Alcohol	.. Kandla
(iii) Benzene	.. Calcutta

4. *Molasses*—Export of molasses during the last few years were as under:—

1961-62	..	.. 66,700 M. Tonnes
1962-63	..	.. 80,609 M. Tonnes
1963-64	..	.. 89,500 M. Tonnes

During 1964 temporary export restrictions were imposed on molasses. M/s The Indian Molasses Co. Ltd., Calcutta, has virtually the monopoly in exporting molasses. This firm on their own have built storage facilities at the undermentioned ports with complete ancillary equipment.

	<i>Molasses</i>	<i>Water</i>
(i) Calcutta	14,400 long tons	10,300 tons
(ii) Visakhapatnam	13,000 long tons	10,000 tons
(iii) Madras	22,800 long tons	15,500 tons

In addition to the above, the Company maintains transshipment facilities at the under-noted points for the purpose of transshipping molasses from meter-gauge to broad-gauge and vice-versa:—

	Molasses long tons	Water tons
(i) Garhara (Bihar) .. .. .	4,500	3,103
(ii) Guntakal (Andhra Pradesh) .. .. .	600	413
(iii) Bezwada (Andhra Pradesh) .. .. .	400	276

It was brought to the notice of the Committee that in view of the export restrictions, the facilities available are principally now used for supplying molasses to various State Distilleries.

5. Generally, the Committee was informed that, although the development programme of alcohol based industries is supposed to absorb almost the entire production of molasses, in real fact, surplus molasses would still be available in large quantities if there was a firm policy regarding supplies of molasses to the alcohol based industries and the factories producing molasses had proper storage facilities for holding stocks till they can export molasses as such. It was stated that the sugar factories have to get the molasses cleared from the tanks instantly at present, to allow storage for further molasses running into the tanks.

6. The question of disposal of molasses from the factories was also tied up with the production programme of the distilleries and unless the latter did not clearly indent their requirements, the estimates of surpluses at any stage would be difficult to make. In the opinion of the Committee, therefore, what was necessary for proper utilisation of the available molasses was to provide for (a) expansion of storage facilities at the factory sites to hold molasses for export and (b) advance planning of the requirements of molasses by the distilleries and the schedule of supplies.

7. *Ethyl Alcohol*—This item was being exported till early 1964 in bulk mainly from the port of Kandla. M/s Distillers Trading Corporation, Bombay, had near monopoly in this export traffic. During the three years from 1961 to 1963, export of Ethyl Alcohol has been:—

1961	..	..	5,286 M. Tonnes
1962	..	..	5,263 M. Tonnes
1963	..	..	8,764 M. Tonnes

This firm had put up at Kandla, two storage tanks of 3,000 tons capacity each. In early 1964, temporary restrictions were imposed, as internal shortage was felt.

8. The Committee examined the export prospects of this item in detail. Due to the installation of plants for the manufacture of synthetic rubber based on the use of Ethyl Alcohol, there is practically no surplus in Ethyl Alcohol for export. Yet, it was brought to the notice of the Committee that even after meeting the requirements of the Bareilly Plant, this item would be available for exports provided

adequate storage and transport facilities are made available for immediate clearance of Ethyl Alcohol from the distilleries to admit of further utilisation of molasses. Due to lack of regular off-take from distilleries and storage facilities there is on one hand wastage of molasses and on the other shortfall in the utilisation of installed capacity for the production of alcohol. The present crisis, it was brought to the notice of the Committee, was a temporary one and that surplus alcohol would be available in the course of a year or so and that planning could be made for alcohol exports on a long-term basis, with due regard to the total availability in the country and the domestic corresponding requirements for different uses.

9. The Committee after examining all the facts, is of the opinion, that in the event of Government relaxing the export restrictions on alcohol, there was no need to alter the pattern of movement followed hitherto and that export could continue from the Kandla Port. This would enable the tank facilities already available at that port to be utilised.

10. Benzene—M/s. Hindustan Steel Ltd., Ranchi, have indicated the export possibilities of "Benzene" as under :—

1966	..	..	4,600 M. Tonnes
1967	..	..	6,700 M. Tonnes

They are unable to forecast the surplus beyond 1967. Exports take place generally from Calcutta. M/s. R. Sen & Co., Calcutta, have erected three tanks, one of 2,000 tonnes capacity, another of 750 tons capacity and the third of 400 tons capacity. These tanks were till recently used primarily for the storage of Benzene on behalf of M/s. Hindustan Steel Ltd. The two smaller tanks are present utilised for the storage of Methanol.

## IMPORTS

11. As has been stated earlier, it has not been easy for the Committee to estimate the liquid chemicals that would be imported in a particular year or over a period of time. Depending upon such information as was available, the Committee is of the view that the liquid chemicals that would have to be imported for some time to come are as under :—

(i) Methanol	..	..	..	..	..	..	8 to 10,000 tonnes
(ii) Acetone	..	..	..	..	..	..	1,000 to 1,500 tonnes
(iii) Diketone Alcohol	..	..	..	..	..	..	1,500 tonnes
(iv) NIBK and M.F.K.	..	..	..	..	..	..	1,000 tonnes
(v) Aniline Oil	..	..	..	..	..	..	1,000 tonnes
(vi) Phenol (Chemically pure)	..	..	..	..	..	..	2,000 tonnes
(vii) Iso-Octanol	..	..	..	..	..	..	1,000 tonnes
(viii) Trichlorethylene and other chlorinated hydrocarbons	..	..	..	..	..	..	2,000 tonnes
(ix) Glycols	..	..	..	..	..	..	1,000 tonnes
(x) Xylene	..	..	..	..	..	..	1,500 tonnes
(xi) Orthoxylene	..	..	..	..	..	..	4,000 tonnes
(xii) Paraxylene (The import will gradually dwindle when indigenous methanol is available)	..	..	..	..	..	..	6,000 tonnes

- (xiii) Toluene .. .. . 1,000 tonnes  
 (xiv) Dodecyl Benzene (The demand for this item is likely to go up to 6,000 tonnes per annum in 4 or 5 years) .. 2,000 tonnes  
 (xv) Dioctyl Phthalate .. .. . 1,000 tonnes

12. In addition to the above, Formic Acid, Formaldehyde, Crestylic Acid (Commercial and pure), Pyridine, Chloroform etc. are also imported in quantities ranging between 300 to 600 tonnes annually. It is understood that Ethylene Dichloride Carbon Tetrachloride Mixture—fumigants—is also imported by the Ministry of Food and Agriculture around 3,000 tonnes valued Rs. 60 lakhs annually. There is a great scope for import of 'liquid ammonia and liquid phosphoric acid' (for use in the manufacture of fertilizers) in bulk. With the experience gained in importing bulk chemicals and subsequent distribution it should be possible to import liquid fertilizers in bulk as the same would be cheaper and necessary installations could be made for this purpose.

13. 'Toluene' though indicated as an item to be imported, it was brought to the notice of the Committee that this being a bye-product of Benzene would be available for export after a period of 5 years. This item when available could easily be transported in tankers suitable for carrying Benzene. The Committee, therefore, felt that tankers which could be used for carrying Benzene immediately for some years could be put into use for exporting Toluene. A doubt was expressed as to whether Suez Canal Authority could have any objection for the movement of Benzene through the Canal. The Counsellor (Commercial), Embassy of India, Cairo, to whom a reference, in this connection, was made has replied that there would be no objection to the movement of Benzene through the Canal from the Suez Canal Authority provided the Carriers comply with the relevant rules of navigation for carrying the dangerous cargo.

### COASTAL MOVEMENT

14. The Committee was informed that in addition to the rationalisation of movement of bulk cargo overseas, the economies involved in the movement of liquid cargo for coastal supplies should not be neglected.

The coastal movement, it is reported, would be extremely cheaper compared to movements across the land. The items which have potential coastal traffic are Methanol from Bombay to Calcutta and Benzene from Calcutta to Okha. Coastal freight rates per ton could be compared to rail/road movements as under :—

	Coastal Movement	Road Movement	Rail Movement
	Rs.	Rs.	Rs.
Bombay-Calcutta	85	160	190
Bombay-Kandla	35	87	100

Apart from the materials expected to be moving by the end of 1965-66, it is envisaged that there will be considerable movement by

1967 of other liquid Chemicals like Ammonia and 'C4' Hydrocarbons like Butadiene. Butenes and Butanes which will be derived from refinery bye-products at Madras and Cochin and will be utilised in the manufacture of fertilizers at Mangalore and of Synthetic Rubber in the Bombay/Koyali areas. By the combination of refrigeration and pressure, these products can be carried in a chemical tanker or alternatively a specially designed gas tanker could be brought into use.

15. The Committee, therefore, suggests that the storage installations that will be built at the various ports for storage of chemicals in bulk should also be utilised for movement of bulk chemicals for coastal traffic.

16. The Committee also examined the question of carriage of dangerous cargo. The evidence given by Captain M. S. Patel, Nautical Adviser to the Government, in this connection, was very useful. It has been brought to the notice of the Committee that the carriage of dangerous goods and explosives in ships is regulated by the International Convention of Safety of Life at Sea 1948. The Government of India having ratified that Convention and have incorporated the requirements of the convention in the Indian Merchant Shipping (Carriage of Dangerous Goods) Rules, 1954 for regulating the carriage of dangerous goods in ships. As these rules are not comprehensive in the matter of packing, marking and storage of individual commodities of dangerous goods, the Government of India by Executive Instructions have accepted the recommendations contained in the "Report of the Ministers' Standing Advisory Committee on carriage of dangerous goods and explosives" issued by the Ministry of Transport and Civil Aviation, U.K. This report commonly referred to as "Blue Book" is the guide adopted currently for carriage of dangerous goods and explosives in ships.

### Tank Farm Requirements

17. The Committee is of the opinion that storage facilities to be built at the port towns should be of the type that would accommodate a number of allied products and limitation of storage to a few specific items should be avoided to the extent possible. It was made clear to the Committee by experts on the subject that edible oils as well as liquid chemicals could be stored and carried in the same tanker under the International Maritime Regulations, though the carriage of liquid chemicals is dependent upon packing, marking, method of storing and meticulously observing the Maritime Regulations. With regard to the storage of vegetable oils as well as liquid chemicals in the same area within the dock, it was pointed out that tank farms could be constructed anywhere, since the terminal of pipelines from the tank farms can be located at a place suitable for connecting the ship's tanks. In regard to tank farms for liquid chemicals, however, the points of consumption should be borne in mind in deciding their location. From this point of view main storages for liquid chemicals should be Bombay and Calcutta. On the basis of the estimated imports of chemicals as indicated at paras 11 and 12 above, and keeping in view the tank farm requirements proposed

for vegetable oils at the various ports, the Committee recommend that the additional tank farms need to be provided as under :—

(i) Bombay port	..	..	..	2,000 tonnes
				<i>Comprising</i>
				2 tanks of 250 tonnes capacity
				3 tanks of 500 tonnes capacity
(ii) Calcutta port	..	..	..	2,000 tonnes
				<i>Comprising</i>
				4 tanks of 250 tonnes capacity
				2 tanks of 500 tonnes capacity
(iii) Madras port	..	..	..	1,000 tonnes
				<i>Comprising</i>
				2 tanks of 250 tonnes capacity
				1 tank of 500 tonnes capacity

18. The tank farms proposed to be established at Bombay/Calcutta/Madras should preferably be composite ones for the storage of vegetable oils, tallow and liquid chemicals designed to bring about maximum flexibility and occupational ratio. It was suggested to the Committee that the tanks that should be built at the various port towns should be of stainless steel as this type of tanks would facilitate easy and quicker cleaning. On an examination of this suggestion, it has been found that no where in India stainless steel tanks have been built so far and even in advanced countries the changeover to stainless steel tanks has been very slow. This is for the reason that the cost of constructing stainless steel tanks is around four times the cost of constructing ordinary mild steel tanks. The Committee, therefore, recommend that it would be sufficient for the present, if ordinary mild steel tanks are constructed.

In view of the congestion at the Bombay Port, it was felt that the ideal site for tank farms would be the Trombay area. At Calcutta it is suggested that the possibilities of taking advantage of the tanks already constructed by M/s. R. Sen & Co. at Calcutta on a rental basis, in the initial stages, should be explored. Construction of additional tanks should be undertaken only after tapping this source. It is recommended the Budge-Budge area should be preferred for such additional storage.

19. The Committee has to recommend that the operation of an Indian Flag Tanker of advanced design with a capacity between 4,000 tonnes and 5,000 tonnes would be most essential if full economic advantage, that could flow from the installation of tank farms at various ports, is to be obtained.

### Suitable Agency

20. From the evidence collected by the Committee, it has been observed that the chemical trade at present is dispersed over too many persons and too many places and as such in the interest of trade itself and for national benefit a co-ordinated effort should be made through a single or limited number of agencies. Together with the facilities that are proposed, such unified management would be in a position to put this trade on a sound footing.

21. M/s. Capexil Agencies, Calcutta, a consortium of important units in the chemical industry had submitted to the Government a scheme to handle the foreign trade in liquid chemicals. If Government approve the scheme, M/s. Capexil Agencies intend to put up tank installations initially at Bombay and Calcutta and subsequently extend the facilities to Madras and Cochin.

22. The salient features of the scheme of M/s. Capexil Agencies is annexed to this report at Appendix VII. The consortium consists of diverse units of the country's chemical industry who contribute to its share capital in small way. It proposes to export the liquid chemicals available in the country from time to time at favourable prices and by arranging freight on most economic terms. Imports are envisaged through established and competitive suppliers on the strength of export promotion licences earned of members and non-members. For facilitating bulk handling the company intends to put up its own installations at the various port towns.

23. The Committee had examined the scheme in detail. M/s. Capexil (Agencies) Ltd., had also at the request of the Committee deputed Dr. R. M. Thakkar to give evidence before it. After examining the scheme in detail and also taking into consideration the evidence tendered before the Committee by the representative of the sponsors of the Scheme, the Committee has felt that though the scheme has its own merits, in practical working it cannot achieve the desired results. The success of a consortium of this type will depend upon the backing it will have from Government/Public Sector undertakings which is completely absent in this case. Any agency which would undertake a project of this nature necessarily need to have tank farms of the type contemplated in this report, sufficient resources to obtain banking facilities and preparedness to incur the initial losses which could not be ruled out in the formative stage. With diverse interests and the limited resources at the disposal of Capexil (Agencies) Ltd., the Committee is not satisfied about the capacity of this consortium as at present to effectively put through the project. Apart from this, whereas, the Committee has laid emphasis on the setting up of "tank farms" that would accommodate a number of allied products and that limitation of storage to a few specific items would not be economical, the "tank farms" envisaged by M/s. Capexil (Agencies) Ltd., are exclusively for liquid chemicals. Under the circumstances, the Committee is of the view that the scheme as submitted to the Government by M/s. Capexil (Agencies) Ltd., Calcutta, will not meet the requirements of the situation. Accordingly a "Central Agency" with adequate resources and will to put through the project, namely, to construct "tank farms" and handle the combined operations of vegetable oils and liquid chemicals should be entrusted with this task at least initially and that at a later stage, if necessary, this could be transferred to one or more bodies as may be prepared to take over this work.

## CHAPTER V

### CENTRAL AGENCY

There is patent lack of bulk storage facilities for liquids at port towns in India. Where such facilities exist to some extent, the private parties who own the bulk installations are charging rather high rates for the services rendered which inhibits the growth of bulk handling. New techniques of Cargo handling and transportation are being developed in the advanced countries and with a view to keeping pace with these developments in the international sphere, a planned programme for meeting the deficiency is called for.

2. The Committee has recommended the establishment of "Tank farms" of various capacities in the port towns based on the current export-import of liquid cargoes as well as estimated volume of trade for the future. In establishing the "Tank farms" the management should be entrusted to in the hands of a unified "Central Agency" whose approach should be to offer the services to any one without discrimination and favour. In the initial stages, in the opinion of the Committee, this task should be entrusted to the Port Trusts at Bombay and Madras and the Director of Ports, Gujarat (for Bhavnagar and Veraval) who have the requisite resources at their disposal. In case these authorities are not willing to undertake this work, the Committee suggests that this task should be taken up by the State Trading Corporation of India Ltd. who have considerable experience in the export of vegetable oils especially groundnut oil and import of liquid chemicals like aniline etc. In the interest of speedy execution of the project the State Trading Corporation should put in initially all the funds required for the various installations. Nevertheless in the operation of the installations and management of business the Corporation should avail of the Cooperation and experience of the concerned commodity associations. As and when the activities expand and there are prospects for raising substantial capital from the trade the question of forming a separate "corporate body" for this purpose could be examined.

3. The details of the capital outlay for installing "tank farms" with tanks each of 250 tonnes capacity and 500 tonnes capacity is furnished in Appendix VIII. The capital investment for the installation for bulk storage and handling of the recommended capacity of 10,600 tonnes comes to Rs. 228 lakhs. This is exclusive of the cost of land which would vary from place to place.

4. In the initial period the Central Agency will have to offer attractive rates of hire and service charges to induce the customers to take full advantage of the tank farms. Ultimately the installations have to be operated commercially so as to pay their way fully. The contingency of losses in the initial stages till the custom is built up should be envisaged and accepted from the beginning.

## CHAPTER VI

### CONCLUSION

The recommendations have been formulated by the Committee as a scheme keeping in view the requirements of "tank farms" on a long-term basis. Accordingly, the recommendations should be considered for implementation on a phased programme.

2. The recommendations require whole-hearted co-operation particularly from :

- (a) Bombay & Madras Port Trusts;
- (b) Director of Ports, Gujarat State;
- (c) Ministry of Transport;
- (d) Ministry of Steel & Mines;
- (e) Ministry of Industry and Supply; and
- (f) Ministry of Commerce.

for allotment suitable sites for establishment of "tank farms", release of iron and steel materials on a priority basis, release of cement, issue of import licences for various equipments etc. etc.

3. The Committee would like to express its gratitude to all those who replied to the questionnaires and also those who appeared before the Committee at various places and gave the benefit of their views. The Committee, particularly, thank the Regional Officer, the State Trading Corporation of India Ltd., Bombay, who was good enough to make the conference hall available to the Committee for holding the meetings.

4. In fitness, the Committee would like to record its grateful thanks to all those who have helped in its deliberations and in particular the Secretary of the Committee, Shri F. R. Bijli who has very ably carried out his assignment and rendered considerable assistance in the presentation of this report.

New Delhi,  
June, 1965

(B. P. Patel)  
(P. A. Narielwala)  
(C. D. Thakkar)  
(C. P. Srivastava)  
(A. Seetharamiah)  
(M. P. Sathaye)  
(K. Ranganathan)  
(F. R. Bijli)

## SUMMARY OF RECOMMENDATIONS OF THE LIQUID CARGO COMMITTEE SET UP BY THE BOARD OF TRADE

1. Handling of liquid chemicals in bulk for storage and distribution, would result in the saving on packing and freight to the extent of 20 per cent. Excess payment is a charge on the foreign exchange outgo. It is therefore, recommended that liquid chemicals should be imported in bulk to the extent possible.

(Para 3, Chapter II).

2. The tank farms that would be established at the various ports should consist of standard units as large in number as possible but the smallest unit should not be less than 250 tons capacity. The tank farms that would be established for storing vegetable oils for export should be utilised for storing imported palm oil/soyabean oil and tallow.

(Para 15, Chapter III).

3. Simultaneously with the construction of tank farms at the various ports, steps should be taken to instal meters and weigh-bridges with a view to adopting the modern methods of weighment and accounting.

(Para 16, Chapter III).

4. Government should take steps to permit cottonseed being crushed into oil. The exportable surplus of this oil is estimated around 1,00,000 tons annually and this should supplement or even replace exports of groundnut oil. Certain technical difficulties will have to be got over and the rules which do not permit the use of solvent extraction oil for edible purposes may have to be amended in the light of the imports of soyabean oil, which is obtained only by solvent extraction process.

(Para 17, Chapter III).

5. The Ministry of Railways should be requested to build the following "Tank Wagons".

Commodity	By the end of 4th Plan	
	BG	MG
Vegetable oils .. .. .	2,000	1,200
*For liquid chemicals other than Molasses and coal tar .. ..	750	50

(Para 12, Chapter III).

\*In the case of distribution of these vehicles for different categories of chemicals, the increase proposed should be more or less in the same proportion as was followed for planning the increase for the Third Plan period over the position at the end of the Second Plan.

6. In the case of molasses what is necessary for proper utilisation of the availability of molasses is to provide for (a) expansion of storage facilities at the factory sites to hold molasses for export and (b) advance planning of the requirements of molasses by the distilleries and the supply thereof according to a schedule of deliveries.

(Para 6, Chapter IV).

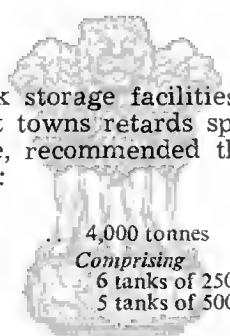
7. A planned allocation of the total availability of ethyl alcohol in the country between the domestic requirements and exports would result in the availability of substantial quantities of surplus alcohol for exports.

(Para 8, Chapter IV).

8. The coastal movement of these commodities in bulk should not be neglected as this has a great potential for improved efficiency and net saving of freight compared to movements over land.

(Para 14, Chapter IV).

9. The absence of bulk storage facilities for exporting vegetable oils at the important port towns retards speedy shipments of vegetable oils. It is, therefore, recommended that the following storage facilities should be built :



(i) Bombay Port	..	..	4,000 tonnes
			<i>Comprising</i>
			6 tanks of 250 tonnes capacity
			5 tanks of 500 tonnes capacity
(ii) Bhavnagar Port	..	..	1,000 tonnes (Addl.)
			<i>Comprising</i>
			2 tanks of 250 tonnes capacity
			1 tank of 500 tonnes capacity
(iii) Veraval Port	..	..	600 tonnes
			<i>Comprising</i>
			2 tanks of 300 tonnes capacity
(iv) Bedi Bunder	..	..	There is no need to construct any storage tanks.
			The existing tank of the private party can be
			taken over by the port/central agency for
			providing the facility.

Considering the economies involved in importing bulk liquid chemicals for subsequent distribution and keeping in view the quantum of liquid chemicals that would have to be imported annually, the following additional tank installations would have to be built for this purpose :

(i) Bombay Port	..	..	2,000 tonnes
			<i>Comprising</i>
			2 tanks of 250 tonnes capacity
			3 tanks of 500 tonnes capacity

\* (ii) Calcutta Port .. .. 2,000 tonnes

*Comprising*

4 tanks of 250 tonnes capacity  
2 tanks of 500 tonnes capacity

(iii) Madras Port .. .. 1,000 tonnes

*Comprising*

2 tanks of 250 tonnes capacity  
1 tank of 500 tonnes capacity

(Para 14, Chapter III and para 17, Chapter IV)

The total number of tanks to be established are:

(i) Bombay Port .. .. 6,000 tonnes

*Comprising*

8 tanks of 250 tonnes capacity  
8 tanks of 500 tonnes capacity

\* (ii) Calcutta Port .. .. 2,000 tonnes

*Comprising*

4 tanks of 250 tonnes capacity  
2 tanks of 500 tonnes capacity

(iii) Madras Port .. .. 1,000 tonnes

*Comprising*

2 tanks of 250 tonnes capacity  
1 tank of 500 tonnes capacity

(iv) Bhavnagar Port .. .. 1,000 tonnes

*Comprising*

2 tanks of 250 tonnes capacity  
1 tank of 500 tonnes capacity

(v) Veraval port .. .. 600 tonnes

*Comprising*

2 tanks of 300 tonnes capacity

Total capacity 10,000 tonnes.

10. The tank farms to be established at Bombay/Calcutta/Madras should preferably be composite ones for the storage of vegetable oils, tallow and chemicals designed to bring about flexibility and occupational ratio. The Committee recommends that it would be sufficient if ordinary mild steel tanks are constructed and that there is no need to go in for stainless tanks for the present :

(Para 18, Chapter IV).

N.B. : The tanks at Bhavnagar and Veraval should be exclusively for bulk storage of vegetable oils.

11. The construction of tanks need not be taken in hand all at a time. This could be staggered and a phased programme will have to be evolved based on demand that would be anticipated, but a beginning should be made at all the ports other than Calcutta.

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\*At Calcutta it is suggested that the possibilities of taking advantage of the tanks already constructed by M/s. R. Sen & Co. at Calcutta on a rental basis, in the initial stages, should, be explored. Construction of additional tanks should be undertaken only after tapping this sources. It is recommended the Budge-Budge area should be preferred for such additional storage.

12. It has been emphasised in the report that currently the world trend has been to sell commodities on c.i.f. basis. In order that a beginning in this direction is made with the bulk storage facilities proposed for vegetable oils/chemicals, an Indian flag tanker of an advanced design with 4,000 tonnes to 5,000 tonnes capacity should be acquired.

(Para 19, Chapter IV).

13. Imports of palm oil/soyabean oil/tallow and liquid chemicals are made on the basis of carefully estimated requirements of numerous actual users and established importers. The economies that would accrue from bulk imports and subsequent redistribution according to the needs are lost under the present practice of individual imports in small lots. It would be desirable, therefore, to import the requirements in bulk through one or more limited agencies for storage and subsequent redistribution in smaller quantities as would be needed from time to time.

(Para 5, Chapter II & Para 20, Chapter IV).

14. "Tank farms" should be established and managed by a Central Agency whose approach should be to offer the services to any one without discrimination and favour. In the initial stages, in the opinion of the Committee, this task should be undertaken by the Port Trust at Bombay and Madras and the Director of Ports, Gujarat (for Bhavnagar and Veraval). In case the Bombay and Madras Port Trusts and the Director of Ports, Gujarat are not willing to undertake this work, the Committee suggests that this task should be taken up by the State Trading Corporation of India Ltd., who have the requisite experience in the export of vegetable oils especially groundnut oils and import of liquid chemicals like aniline etc. In the interest of speedy execution of the project the State Trading Corporation should put in initially all the funds required for various installations but should associate the local commodity associations in the management of the respective installations so as to avail of their experience. As and when the activities expand and there are prospects of collecting substantial capital from the trade the question of forming a separate corporate body for this purpose could be examined.

(Para 2, Chapter V).

APPENDIX I(A)

No. 7(1)/64-BOT

Government of India

MINISTRY OF INTERNATIONAL TRADE

New Delhi, the 15th May, 1964

OFFICE MEMORANDUM

The Government have had under consideration for some time past the question of undertaking a study of the possibilities of arranging for bulk transportation, storage and handling of liquid cargoes exported from and imported into India as a means of increasing the efficiency of operations, reducing costs and maximising foreign exchange earnings. They have now decided to appoint a Committee to go into the question and make recommendations thereon.

2. The Committee will consist of the following :—

- |   |          |
|---|----------|
| 1. Shri B. P. Patel,<br>Chairman,<br>State Trading Corporation,<br>New Delhi.   | Chairman |
| 2. Shri C. D. Thakkar,<br>Chairman,<br>Chemicals and Allied Products,<br>Export Promotion Council,<br>Calcutta.   | Member   |
| 3. Shri P. A. Narielwala,<br>Chairman,<br>Basic Chemicals, Pharmaceuticals<br>and Soaps, Export Promotion<br>Council, Bombay.                             | "        |
| 4. Shri C. P. Srivastava,<br>Managing Director,<br>Shipping Corporation of India,<br>Bombay.  | "        |
| 5. Dr. A. Seetharamiah,<br>Industrial Adviser,<br>Directorate General of Technical<br>Development (Alternate Member<br>Shri Venkateswaran, Dev. Officer). |          |
| 6. Shri S. Rajagopalan,<br>Director (Transport),<br>Ministry of International Trade,<br>New Delhi.  | "        |
| 7. Shri K. Ranganathan,<br>Deputy Secretary,<br>Ministry of Transport and Communications,<br>New Delhi.   | "        |
| Shri F. R. Bijli, Senior Export Promotion Officer, Ministry of International<br>Trade, will function as Secretary of the Committee.                       |          |

3. The terms of reference to the Committee shall be as follows :—

- (a) To assess the annual exports from and imports into India of liquid cargoes other than petroleum products during the next 10 years;
- (b) To review the existing port, shipping and ancillary facilities available for the transportation, storage and handling of liquid cargoes at present;
- (c) To determine the extent to which it would be possible to organise the handling of bulk shipment of liquid cargoes exported from and imported into India with a view to improving the efficiency of operations, reducing costs and maximising foreign exchange earnings;
- (d) To recommend measures for the installation of the port storage facilities and for the acquisition of tankers necessary for achieving the above objective;
- (e) To formulate a comprehensive scheme for the bulk transportation, storage and handling of liquid cargoes and to recommend a suitable agency or agencies which should be entrusted with the administration of such a scheme; and
- (f) To make recommendations on such ancillary measures as it may consider necessary for improving the efficiency of operations in the transportation, storage and handling of liquid cargoes.

4. The Committee may meet in Delhi or elsewhere in India.

5. The Committee will submit its report to the Government within a period of three months.

Sd./- C. R. KRISHNASWAMY RAO SAHIB  
Joint Director (Export Promotion)

To

1. Shri B. P. Patel,  
Chairman, State Trading Corporation,  
Mathura Road,  
New Delhi.
2. Members of the Committee.
3. Shri F. R. Bijli,  
Senior Export Promotion Officer,  
Ministry of International Trade,  
New Delhi.

**APPENDIX I(B)**

Amendment to the Office Memorandum constituting the Committee, having the effect of replacing Shri S. Rajagopalan by Shri M. P. Sathaye.

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APPENDIX II(A) & II(B)

Questionnaires on Vegetable Oils and Liquid Chemicals.

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### APPENDIX III & IV

Chambers etc. who were addressed for information, and experts who gave oral evidence.

(Not reproduced)

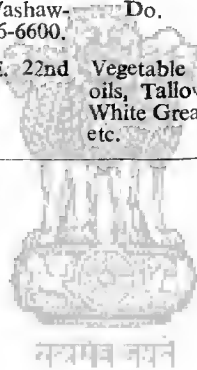


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# APPENDIX V

## COMMERCIAL ORGANISATIONS OPERATING TANK STORAGE FACILITIES AT NEW YORK-NEW JERSEY PORT

Name	Type of Bulk liquid	No. of Tanks	Capacity of Facility
Harbor Tank Storage Co., West New York, New Jersey, Tel LO 5-6363.	Vegetable and Animal oil.	100	70,000 short tons
Theobald Industries, Sanford Avenue Kearney, New Jersey, Tel WY 1-6500	Do.	15 10	20,000 short tons So. Kearney 5,000 short tons Bayonne.
Spencer-Kellogg Div. of Taxtron Inc., 143 River Road, Edgewater, New Jersey	Vegetable oil	17	12-23,000,000 lbs. 5-2,000,000 lbs.
Manhattan Tank Storage Pt. of 70th Street River Road, Cuttenberg, New Jersey, Tel WH 4-2370.	Do.	22	35,000 short tons.
Hudson Tank Storage Co., Inc. Washawken, New Jersey, Tel 201 UN 6-6600.	Do.	85	25,000 short tons
Bayonne Industries Inc. Pt. of E. 22nd Street Bayonne, New Jersey.	Vegetable oils, Tallow, White Grease etc.	104	42,000,000 Gallons



APPENDIX VI

STATEMENT SHOWING THE NUMBER OF TANK WAGON  
AVAILABLE ON INDIAN RAILWAYS FOR TRANSPORT  
OF LIQUID CONSIGNMENTS EXCEPT PETROLEUM  
PRODUCTS

Commodity	Position at the end of Second Plan		Position as on 31-3-1964		Anticipated posi- tion at the end of Third Plan	
	B.G.	M.G.	B.G.	M.G.	B.G.	M.G.
1	2		3		4	
1. Vegetable oil ..	912	397	1,000	416	1,078	690
2. Molasses ..	380	474	395	527	415	527
3. Sulphuric Acid	75	12	64	12	75	26
4. Liquid caustic soda .. ..	59	—	65	—	130	—
5. Liquid Ammonia	20	—	34	—	48	—
6. Liquid Chlorine	10	—	10	—	10	—
7. Hydrochloric Acid .. ..	16	—	16	—	16	—
8. Bitumen .. ..	30	—	30	—	105	—
9. Cresote Oil ..	10	—	17	—	32	—
10. Benzene, etc. ..	—	—	65	—	104	—
11. Coal Tar ..	108	—	150	—	166	—
TOTAL ..	1,620	883	1,854	957	2,179	1,243

B.G. = Broad Gauge.

M.G. = Metre Gauge.

## APPENDIX VII

### SALIENT FEATURES OF THE SCHEME SUBMITTED BY CAPEKIL AGENCIES, CALCUTTA, TO GOVERNMENT FOR TRADING IN LIQUID CHEMICALS IN BULK

#### *Objectives :*

This schemes shall have the following objectives in view :—

- (1) Export material from India at the best prices obtainable and by arranging for freight on the most economic terms;
- (2) Import material with the most economic expenditure of foreign exchange on both material and freight so that prices of import c.i.f. Indian ports are competitive;
- (3) Arrange for storage at the main ports of Bombay, Cochin, Madras, Calcutta—commencing with Bombay and Calcutta—of the liquids in view for export and import by introducing, with the Government of India's permission, bonding arrangements.

From standpoint of the scheme, imported materials would be possible of being received in these tanks free of duty, the duty being paid only at the point of its clearance out of bond. Some of this material could be also re-exported so that by offering bonding facilities to the suppliers abroad, they are attracted to carrying into and storing in India their goods, and re-exporting to nearby countries from here. This will increase the physical availability of material within the country and serve as an unofficial stockpile without incurring expenditure of foreign exchange on big scale.

This will also enable the storage facilities being given simultaneously to storage of some material for internal distribution as well—e.g., benzene at Calcutta and methanol, expected later to arise at Trombay, Bombay:

- (4) Ensure, that having regard to the prices c.i.f. Indian port at which actual users may have imported material in the past, the comparable prices then and at the time of imports in the future f.o.b. port of origin, Indian import duties etc., the price at which material is made available to them is competitive.

#### *Method of Operation :*

- (1) This Company has approached the Director of Transport in the Ministry of International Trade for making available to them on lease a suitable plot of land at Bombay and at Calcutta, initially, for construction of storage.

The capacity visualised is 4,500 tons at each of the two places of Bombay and Calcutta spread suitably in tanks of different sizes. A complete preliminary proposal is already before the Bank and while, immediately, from the standpoint of internal consumption of imported material a higher capacity at Bombay than at Calcutta would seem justified, it is felt that having regard to the necessity to store some items as alcohol and benzene in Calcutta even for internal distribution and the possibility of using these at bonded terminals for re-export, the capacity to be planned may be of equal volume.

It is expected that about 12,000 tons of inward moving chemicals and 20,000 tons of outward moving chemicals could be stored in each of the terminals visualised.

- (2) Procurement of material for export is not expected to present serious difficulties and we expect that this should be possible smoothly. The Indian Oil Company has agreed to export its iomex through us and we are in fact now trying to see how best we could establish the product to the minimum requirements of buyers. From the standpoint of costing, separate proposals have been made before the Ministry either for its outright barter or for assisting its movement by a cash incentive in respect of benzene, the HSL have now agreed to sell by tender and we are hopeful

of being soon able to match their pricing. In fact after our entry into this the price has picked up by about \$ 10 a ton metric although improvement in international prices in the same period has not been noticeable. By virtue of our being able to offer them much needed storage we are hopeful of being able eventually to secure their surplus for export. In regard to alcohol, supplies will flow in from Bihar and Uttar Pradesh. We shall meet, if needed, from these tanks, the internal requirements of pharmaceutical industries in West Bengal, placed approximately at nine lakh gallons per year and export the balance.

In the matter of import, import will be through the most established and competitive suppliers.

(3) The material imported, will, if needed by Customers, be repacked before delivery or re-export.

(4) The imports will be effected, as stated earlier, on export promotion licences as may be earned by us; export promotion licences as may be earned by other exporters and against which we are requested to arrange for import; actual users licences against which we may be requested by parties to arrange for export and which they endorse to us.

Imports may also come in against specific barter deals, if any, as the Government of India may authorise us to do.

(5) The financing of the exports and the imports will be entirely looked after by us; so also the storage; and we do not need any Governmental assistance in this regard.

#### *Pricing of Imported Materials :*

We have in view to price the imported material on the following basis but actual prices to be fixed, we are agreeable, will be in consultation with and as approved by the Directorate General of Technical Development and Coordination :

- (1) Price of material f.o.b. port of origin
- (2) Actual freight expenditure
- (3) Insurance
- (4) Customs and clearance charges
- (5) Customs duty
- (6) Storage and handling charges
- (7) Repacking charges (if incurred) as also bank charges, charges on quality control etc.
- (8) Contribution to building up an export development fund.
- (9) Profit to the Capexil (Agencies) Ltd.
- (10) Distributor's profit where the material moves through distributors.

Of these the foreign exchange expenditure will be on the items 1 and 2 as we visualise and will be limited to actual expenses. Insurance, it is hoped, will be possible to be done in India but in special cases where Indian companies may not interest in it, it will have to be placed abroad. The detailed price structure in any case will be discussed with Directorate General of Technical Development from time to time and be subject to their approval.

#### *Some Essential Features :*

In this scheme, this Company will also like to assure the Government of the following :—

- (1) It will be our endeavour to import the material at the most economic c.i.f. prices and the foreign exchange to be released to us for such imports will be the actual as we incur on the purchase price of the material, f.o.b. port of origin; freight at actuals; and insurance where insurance is placed abroad for reasons of the unwillingness or the inability of Indian Insurance Companies to cover risks.

- (2) Apart from licences we earn against exports other import licences will be solicited by us from licence holders for services we render.
- (3) Prices to be established for delivery will be as the Directorate General of Technical Development may approve and will seek to give also the actual user some benefit.
- (4) Storage arrangement will start initially at Bombay and at Calcutta and gradually be extended to other places, facilitating the build up in India of an unofficial stockpile in materials with the minimum expenditure of foreign exchange.

*Assistance Needed :*

This clarifies the assistance we shall need from Government and which will consist of :—

- (a) making available to us a suitable land we have applied to the Director, Transport already indicating certain sites at Bombay and at Calcutta for construction of storage;
- (b) release to us, on priority, of controlled material as may be needed in the construction of the tanks;
- (c) permission to "bond" the entire storage area so that materials imported could be landed there, repacked etc. without payment of duty and re-exported, where needed and duty will need to be paid on material consumed internally only when it is cleared from bond. Similarly, the bond should enable excisable materials, which have to be exported, to be moved into the storage from origin, without payment of excise duty, sales tax etc.;
- (d) release of foreign exchange for importation of material at a level as the Directorate General of Technical Development and Coordination may satisfy themselves and approve of as also for engagements of vessel/vessels on time charter or trip charter as needed;
- (e) permission to re-export imported materials, from bond, if needed, after repacking; and
- (f) facilities in cases, as Government may consider worthwhile, to do barter and to import from countries with which India may have rupee payment agreement.

*Conclusion :*

It is obvious this arrangement will have many advantages in so far as :

- (a) export and import will be at the most attractive/economic prices and the minimum amount will be spent on freight as foreign exchange;
- (b) the price of the material to the actual user will be reasonable and be always subject to Government's scrutiny;
- (c) a commodity as 'iomex' now not moving out of the country may be a exported in large quantities;
- (d) export will be through a representative Indian set up and not an individual monopoly and expertise in handling goods will be developed internally along with worthwhile international connections;
- (e) appropriations to profit will figure only after appropriations to an Export Development Fund;
- (f) there will be complete check on the quality of exported products;
- (g) with a minimum expenditure of foreign exchange we shall maintain an unofficial stock pile in the country and build up also some re-export trade.

With a view to making the holdings of the Company broad based the Directors of the Company have invited every manufacturer on the membership of the Chemicals and Allied Products Export Promotion Council and the Basic Chemical, Pharmaceutical and Soaps Export Promotion Council to subscribe to its shares subject to a maximum of Rs. 15,000 per company.

## APPENDIX VIII

### ESTIMATED COST OF STORAGE INSTALLATION

#### *500 tonnes capacity*

1. Approximate area required	(a) 40 ft. dia. × 15 ft. high	.. .. 600 sq. ft.
for one storage tank of 500	(b) Area of tank foundation 56 ft. × 56 ft.	3,136 sq. ft.
tonnes/250 tonnes capacity	(c) Provision for pump house	.. 4,000 sq. ft.
on the basis of 40 ft. dia. ×		
15 ft. high and 28 ft.	TOTAL	.. 7,736 sq. ft.
dia × 15 ft. high.		

#### *250 tonnes capacity*

(a) 28 ft. dia. × 15 ft. high	.. .. 420 sq. ft.
(b) Area of tank foundation 45 ft. × 45 ft.	2,025 sq. ft.
(c) Provision for pump house	.. .. 3,000 sq. ft.
TOTAL	.. 5,445 sq. ft.

#### *500 tonnes capacity*

2. Approximate cost of constructing one multiproduct tank with mild steel.	(a) Weight of the tank	.. .. 29 tonnes
	(b) Average thickness of plates	.. 8 m.m.
	(c) Cost per metric tonne	.. .. Rs. 1,150/-
	(d) Cost of plates	.. .. Rs. 33,350/-
	(e) Fabrication charges per tonne	Rs. 800/- .. .. Rs. 23,200/-
	(f) Erection and welding charges per tonne Rs. 700/-	.. .. Rs. 20,300/-
	TOTAL	.. Rs. 76,850/-

#### *250 tonnes capacity*

(a) Weight of tank	.. .. 15 tonnes
(b) Average thickness of plates	.. 6 m.m.
(c) Cost per metric tonne	.. .. Rs. 1,150/-
(d) Cost of plates	.. .. Rs. 17,250/-
(e) Fabrication charges per tonne	Rs. 800/- .. .. Rs. 12,000/-
(f) Erection and welding charges per tonne Rs. 700/-	.. .. Rs. 10,500/-
TOTAL	.. Rs. 39,750/-

*N.B.*—The above estimates may vary depending upon local costs of steel and labour.

3. Number of pipe-lines required. This is mainly dependant on the location of site at the port. For a multiproduct installation three pipe-lines should ideally be installed as under :—
- (i) for water miscible solvents such as alcohols, ketones, aldehydes etc.
  - (ii) for hydrocarbon solvents, xylene, benzene, hexane and non-edible oils such as castor oil and tallow, and
  - (iii) for edible oils.

4. Approximate length of the pipe-lines from the tank to the jetty. The length of the line to the jetty will depend on the exact site of the "tank farms". However, it will not be less than 1.2 kilometers ( $\frac{3}{4}$  mile) and may be as much as 4 kilometers ( $2\frac{1}{2}$  miles).

5. Approximate cost of the (4) above. The approximate market prices for different diameter of pipelines of mild steel are as under:—

4" dia. Rs. 5 per ft.

6" dia. Rs. 10 per ft.

8" dia. Rs. 27 per ft.

In addition to this welding and erection of the pipeline would be as under:—

4" dia. Rs. 8 per ft.

6" dia. Rs. 10 per ft.

8" dia. Rs. 12 per ft.

6. Ancillary equipments required like pumps etc. The ancillary equipments required depend on the products that are to be handled, the diameter of the pipe-lines, its length, frictional losses and to some extent the capacity of the tank. The following ancillary equipments are generally required:

(1) Flame proof pumps for drum filling, loading cars etc;

(2) Fire fighting equipment;

(3) Batching pigs and associated equipments; and

(4) Boiler unit.

7. Estimated cost of (5) above
- |                                      |                                 |
|--------------------------------------|---------------------------------|
| (1) Large pump Rs. 17,000            | } Imported pumpsexcluding duty. |
| (2) Small pump Rs. 7,000             |                                 |
| (3) Fire fighting equipment          | Rs. 25,000/-                    |
| (4) Batching pigs etc.               | Rs. 3,000/-                     |
| (5) Boiler Unit Rs. $\frac{1}{2}$ to | Rs. 1 lakhs.                    |

8. Expenditure on overheads Overheads will vary according to the facilities planned. Eventually the following could be provided:—

(1) Pump house

(2) Site Office

(3) Covered Drumming points;

(4) Covered loading discharge facilities for road tank cars;

(5) Rail sidings and loading/discharge facilities;

(5) Laboratory;

- (7) Drum reconditioning Plant;  
 (8) Electrical installations;  
 (9) Possible excise accommodation, if an excisable commodity;  
 (10) Accommodation for clerks; and  
 (11) Rest room etc. etc.
9. Staff required for maintenance etc. Not more than 20 persons with a total cost of Rs. 8,000/- per month or Rs. 1 lakh a year with a competent-manager for the project.

On the basis of the costing indicated above, the approximate cost of constructing a tank each of 250 tonnes and 500 tonnes capacity excluding the cost of land, fire-fighting equipment, boiler units, overheads and recurring expenditure on staff could be placed as under :—

Items	Tank of 250 tonnes Rs.	Tank of 500 tonnes Rs.
1. Cost of constructing a multi-product tank with mild steel	39,750	76,850
2. For 3 pipe-lines of the length each of 3·6 kilometres (2 miles) @ Rs. 20/- per foot. (for 6" diameter).	6,33,600	6,33,600
3. Ancillary equipments like Pumps and Batching pigs etc.	40,000	40,000
<b>TOTAL ..</b>	<b>7,13,350</b>	<b>7,50,450</b>
<b>Say Rs. ..</b>	<b>7,15,000</b>	<b>7,50,000</b>

The total estimated cost for establishing "Tank-farms" at the port towns could be placed as follows :—

1. *Bombay*

	Rs.
8 tanks × 250 tonnes capacity .. .. .	57,20,000
8 tanks × 500 tonnes capacity .. .. .	60,00,000
4 fire-fighting equipments (subject to increase/decrease according to the suggestion of local fire officer) at Rs. 25,000/- each.	1,00,000
2 Boiler units at Rs. 0·75 lakh each .. .. .	1,50,000
Staff Expenses (recurring) annually for 20 members staff .. .. .	1,00,000
<b>TOTAL ..</b>	<b>1,20,70,000</b>

*N.B.*—The above is exclusive of the cost of land as well as the cost on overheads.

2. *Calcutta*

	Rs.
4 tanks × 250 tonnes capacity .. .. .	28,60,000
2 tanks × 500 tonnes capacity .. .. .	15,00,000
2 fire-fighting equipments (subject to increase/decrease according to the suggestion of local fire officer) at Rs. 25,000/- each .. .. .	50,000
1 Boiler Unit .. .. .	75,000
Staff expenses for 10 members (Recurring) .. .. .	50,000
<b>TOTAL ..</b>	<b>45,35,000</b>

*N.B.*—1. The above is exclusive of the cost of land as well as the cost on overheads.

2. At Calcutta, it has been suggested that there is no need to go in for constructing tanks and that the tanks owned by M/s R. Sen & Co. Calcutta could be utilised for use on rental basis.

	Rs.
3. <i>Madras</i>	
2 tanks × 250 tonnes capacity .. .. .	14,30,000
1 tank × 500 tonnes capacity .. .. .	7,50,000
One fire-fighting equipment .. .. .	25,000
One boiler unit .. .. .	75,000
Staff Expenses (6 members) annually (recurring) .. .. .	30,000
<b>TOTAL ..</b>	<b>23,10,000</b>

*N.B.*—The above is exclusive of the cost of land as well as the cost on overheads.

	Rs.
4. <i>Bhavnagar</i>	
2 tanks × 250 tonnes capacity .. .. .	14,30,000
1 tank × 500 tonnes capacity .. .. .	7,50,000
One fire-fighting equipment .. .. .	25,000
One Boiler unit .. .. .	75,000
Staff expenses (6 members) annually (recurring) .. .. .	30,000
<b>TOTAL ..</b>	<b>23,10,000</b>

*N.B.*—The above is exclusive of the cost of land as well as the cost on overheads.

	Rs.
5. <i>Verawal</i>	
2 tanks × 300 tonnes capacity .. .. .	14,30,000
One fire-fighting equipment .. .. .	25,000
One boiler unit .. .. .	75,000
Staff expenses (6 members) annually (recurring) .. .. .	30,000
<b>TOTAL ..</b>	<b>15,60,000</b>

*N.B.*—The above is exclusive of the cost of land as well as the cost on overheads.

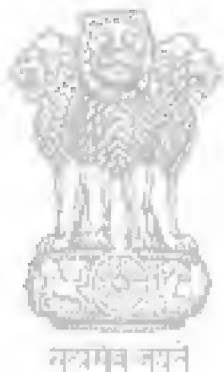
#### 6. *Bedi Bunder :*

The Committee has suggested there is no need to build any storage installations and that the existing tanks owned by private party to be taken over. In case of Committee's recommendation is accepted to take over the tank by the "Central Agency" negotiations will have to be carried to acquire the same at the fair price.

C. It has not been possible for the Committee to work out the costing involved on "overheads" indicated at A-3 above. This depends on various factors and the facilities planned for each tank farm. The Railway sidings required depend on nearness to the station, the total track-length contemplated, the materials to be used etc. etc. In order to arrive at the financial implications involved on this item, the Committee suggests that as and when the recommendation for establishment of "Tank-farms" are accepted, an expert body should be entrusted to work out the exact financial involvement on "overheads".

D. Subject to "C" above, the total financial implications in establishing the "Tank farms" are :—

										Rs. lakhs
(i) Bombay	..	..	..	..	..	..	..	..	..	121
*(ii) Calcutta	..	..	..	..	..	..	..	..	..	45
(iii) Madras	..	..	..	..	..	..	..	..	..	23
(iv) Bhavnagar	..	..	..	..	..	..	..	..	..	23
(v) Verawal	..	..	..	..	..	..	..	..	..	16
TOTAL										228



*Plus*—The cost involved in taking over the tank at Bedi-Bunder.

\*It has been recommended that the tanks already built by M/s R. Sen & Co., Calcutta could be utilised initially on a rental basis and that there is no need to go in for constructing "Tank Farms" immediately. To this extent the cost be reduced to Rs. 186 lakhs.



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